

**Listing of Claims**

1. (Currently Amended)      An X-ray source comprising:
  - an electron source ~~(1)~~ for the emission of electrons ~~(E)~~,
  - a target ~~(4)~~ for the emission of characteristic, substantially monochromatic X-rays ~~(C)~~ in response to the incidence of the electrons ~~(E)~~, said target ~~(4)~~ comprising a metal foil ~~(5)~~ of a thickness of less than 10 $\mu$ m and a base arrangement ~~(7, 12)~~ for carrying said metal foil ~~(4)~~, wherein the metal of said metal foil ~~(5)~~ has a high atomic number allowing the generation of X-rays ~~(C)~~ and the material substantially included in the base arrangement ~~(7, 12)~~ has a low atomic number not allowing the generation of X-rays ~~(C)~~, and
  - an outcoupling means ~~(11)~~ for outcoupling the X-rays ~~(C)~~ on the side of the metal foil ~~(5)~~ on which the electrons ~~(E)~~ are incident and which is opposite to the side of the base arrangement ~~(7, 12)~~.
2. (Currently Amended)      ~~An~~ The X-ray source as claimed in claim 1, wherein said base arrangement comprises a rotatable base plate ~~(12)~~ of a material having an atomic number of less than 10, in particular in the range from 4 to 6.
3. (Currently Amended)      ~~An~~ The X-ray source as claimed in claim 1, wherein said base arrangement comprises a cooling circuit ~~(7)~~ arranged to allow a coolant ~~(8)~~ to flow along the side of said metal foil ~~(5)~~ opposite to the side on which the electrons ~~(E)~~ are incident.
4. (Currently Amended)      ~~An~~ The X-ray source as claimed in claim 3, wherein the coolant ~~(8)~~ has a mean atomic number of less than 10.
5. (Currently Amended)      ~~An~~ The X-ray source as claimed in claim 3, wherein the coolant ~~(8)~~ is water.
6. (Currently Amended)      ~~An~~ The X-ray source as claimed in claim 3, wherein said cooling circuit ~~(7)~~ comprises a constriction ~~(10)~~ in the area of the metal foil ~~(5)~~.

7. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 3, wherein said target (4) further comprises a carrier (6) of low atomic number material, in particular having a mean atomic number of less than 10, supporting the metal foil (5) on the side facing the coolant (8).
8. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein the metal foil (5) has a thickness of less than 5 $\mu$ m, preferably between 1 and 3 $\mu$ m.
9. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein the metal of said metal foil (5) has an atomic number between 40 and 80.
10. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein said outcoupling means (11) is adapted to outcouple X-rays (C) at angles of an angular range from substantially 45° to 135°, in particular 70° to 110°, to the surface of the metal foil (5).
11. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein said outcoupling means (11) is adapted to outcouple X-rays (C) in a direction substantially antiparallel to the direction of incidence of said electrons (E), in particular in a direction at an angle in the range from 150° to 210° to the direction of incidence of said electrons (E).
12. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein said electrons (E) are directed onto the surface of said metal foil (5) at a substantially 90° angle.
13. (Currently Amended)      ~~At~~The X-ray source as claimed in claim 1, wherein said electron source (1) is located outside the X-ray beam (C) to be outcoupled, said X-ray source further comprising means (2) for directing the electron beam (E) onto the metal foil (5).

14. (Currently Amended) A target for use in an X-ray source for the generation of characteristic, substantially monochromatic X-rays ~~(C)~~ in response to the incidence of electrons ~~(E)~~, said target ~~(4)~~ comprising a metal foil ~~(5)~~ of a thickness of less than 10 $\mu$ m and a base arrangement ~~(7, 12)~~ for carrying said metal foil ~~(5)~~, wherein the metal of said metal foil ~~(5)~~ has a high atomic number allowing the generation of X-rays ~~(C)~~ and the material substantially included in the base arrangement ~~(7, 12)~~ has a low atomic number not allowing the generation of X-rays ~~(C)~~.

15. (New) An x-ray source comprising:  
an electron source for the emission of electrons, and  
a target for the emission of substantially monochromatic x-rays in response  
to the incidence of the electrons, said target comprising a metal foil and base arrangement,  
said metal foil allowing the generation of x-rays and the base member not allowing the  
generation of x-rays.

16. (New) The x-ray source as claimed in claim 15, wherein said base arrangement  
comprises a cooling circuit to allow a coolant to flow along the side of said metal foil  
opposite to the side on which the electrons are incident.

17. (New) The x-ray source as claimed in claim 16, wherein the coolant is water.

18. (New) The x-ray source as claimed in claim 16, wherein said cooling circuit  
comprises a constriction proximate the metal foil.